PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. I. JAN. FEB. & MAR. 1839. No. 6.

Stated Meeting, January 4.

Present, fifteen members.

Dr. PATTERSON, Vice President, in the chair.

The result of the annual election for officers, held this day, was reported as follows:—

President.

Peter S. Du Ponceau, LL. D.

Vice Presidents.

Nathaniel Chapman, M. D.,
Joseph Hopkinson, LL. D.,
Robert M. Patterson, M. D.

Secretaries.

Franklin Bache, M. D.,
John K. Kane,
Alexander D. Bache, LL. D.,
J. Francis Fisher.

Counsellors for Three Years.

William Short,
William H. Keating,
George Ord,
C. C. Biddle.

Curators.

J. P. Wetherill,
Isaac Hays, M. D.,
Franklin Peale.

Treasurer.

John Vaughan.

The following donations were received:—

FOR THE LIBRARY.

On the Functions of the Cerebellum, by Drs. Gall, Vimont, and Broussais. Translated from the French, by George Combe: also answers to the objections urged against Phrenology by Drs. Roget, Rudolphi, Prichard, and Tiedemann. By George Combe and Dr. A. Combe. Edinburgh, 1838.—*From Mr. George Combe.*

Magazine of Natural History. Edited by Edward Charlesworth. Vol. II. New Series. Nos. 22, 23, & 24. London, 1838.—*From the Editor.*

The American Medical Library and Intelligencer. By Robley Dunglison, M. D. Vol. II. Nos. 19, 20, & 21. Philadelphia, 1839.—*From the Editor.*

Railway Map of England and Wales. London, 1838.—*From Mr. William Vaughan.*

Chart of George's Shoal and Bank. Surveyed by Charles Wilkes, Lieut. Commandant, and the officers of the U. S. Brig Porpoise, and of the Schooners Maria and Hadassah, by order of the Hon. Mahlon Dickerson, Secretary of the Navy.—*From the Athenæum.*

Panorama and Views of Philadelphia, and its vicinity. From Paintings by J. C. Wild. With poetical illustrations by Andrew M'Makin. Philadelphia, 1838.—*From the Publisher.*

FOR THE CABINET.

An Ibis from Egypt.—*From V. L. Godon, M. D.*

Dr. Dunglison made a verbal communication on the subject of the vaccine virus and its alleged liability to lose its protective character under certain circumstances.

He stated that, in consequence of severe epidemic small-pox having recently occurred in England, from which many who had been previously vaccinated had suffered severely, it had been a matter of solicitude with many medical practitioners to revert to the original source for vaccine virus. Mr. Estlin, of Bristol, having succeeded in obtaining some lymph from a cow labouring under cow-pox, inserted it in the arm of a young lady, in August last, and from her the disease was subsequently propagated. Some of the virus, obtained at ten removes, was sent to Dr. Dunglison by Messrs. Estlin and Car-

penter, of Bristol. This has been used in several cases, and the disease produced by it appeared to him to be more satisfactory than that which results from the old virus.

Dr. Dunglison stated that there was reason to believe that a sufficient supply of the new virus would soon be obtained for distribution through the country.

Professor A. D. Bache stated to the Society that observations had been made on the night of the 12th—13th of November last, by Professor Henry, at Princeton, Professor W. B. Rogers, at the University of Virginia, and Professor R. P. Smith, at Kenyon College, Ohio, neither of whom had noted an unusual number of the meteors commonly called "shooting stars."

The Committee on the paper entitled Contributions to the Geology of the tertiary formations of Virginia, by Professor William B. Rogers, and Professor Henry D. Rogers, reported in favour of its publication, and the publication was ordered accordingly.

The resolutions presented on the 16th of November last, by Mr. Kane, relative to the distribution of the Society's Proceedings, were adopted as follows:—

That the Librarian be instructed to retain twenty copies of the Society's Proceedings, for the use of the Society; and that as soon as published he transmit one copy,

1. To each subscriber to the Transactions.
2. To each of the Societies in correspondence with this Society.
3. To each of the principal Colleges, Athenæums, and public libraries in the United States.
4. To the editors of each of the Scientific Journals in the United States, and of the principal Scientific Journals elsewhere;

That he transmit to all donors to, and correspondents of, this Society, copies of the numbers in which their donations or communications are noticed;

And that he distribute the remaining copies, at his discretion, to such members as may apply for them.

Stated Meeting, January 18.

Present, twenty-two members.

Mr. Du Ponceau, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Uitgegeven door J. Van der Hoeven, M. D. Prof. te Leiden en W. H. de Vriese, M. D. Prof. te Amsterdam. Leyden, 1838.—*From the Minister of the Interior of the Netherlands.*

Flora Batava, of afbeelding en beschrijving van Nederlandsche Gewassen, door Jan Kops, en H. C. Van Hall. No. 115. Amsterdam.—*From the same.*

Verzeichniss der Königlich Sächsischen Gemälde-Galerie zu Dresden, von Friedrich Matthäi, Director etc. Dresden, 1837.—*From Mr. Thomas Sully.*

Letter from the Secretary of War, the Hon. Lewis Cass, transmitting Captain Turnbull's Report on the Survey and Construction of the Alexandria Aqueduct. Document of the House of Representatives, No. 459. 1838.—*From. Col. J. J. Abert.*

The Committee appointed to describe the Coins and Medals presented by Colonel Linah, reported and was discharged.

Professor A. D. Bache and Mr. Walker were added to the Committee on the Observatory.

Mr. John Vaughan was elected Librarian.

The Standing Committees for the year were appointed.

Professor A. D. Bache made a verbal communication relative to an extraordinary instance of the rapid corrosion of a chain cable in sea-water, reported to him by Lieutenant George M. Bache, of the United States Navy, and showed the Society a link from a portion of the cable.

The chain cable, of which this was a part, was used to anchor the Light-boat off Bartlett's reef, near New-London, Connecticut. The portion between the hawse-hole and the bridle of the anchors, about eleven fathoms in length, is particularly exposed to corrosion. In a

few months the links, or the keys of the shackles attaching the chain to the bridle, become so much oxidated as to lose the requisite tenacity.

The link, presented as a sample of the chain, is irregularly oxidated and worn, presenting semi-spheroidal cavities, and the fibrous structure of the iron is very distinctly developed. While this is the case with the wrought iron part of the link, the cast iron stud which strengthens it is not materially acted on. The raised letters upon the stud are perfect.

The circumstances in which this chain is differently situated from others, used in similar situations, result from the peculiar construction of the Light-boat, by which the copper sheathing rises above, and is in contact with, the cast-iron hawse-pipe, through which the cable passes. This cast-iron pipe has on its exterior a lead pipe. The copper sheathing is bright.

This action being attributed by Lieutenant Bache, to the contact of the copper and iron in presence of sea-water, he had ordered the copper to be removed from around the hawse-hole, the result of which experiment would test the truth of the supposition.

Professor Bache stated his wish to call special attention to the entire soundness of the cast-iron, while the wrought-iron was corroded; as if the latter had acted as a protector to the former. He believed that some general laws of interest would be made out by the Committee of the British Association engaged in investigating the subject to which this fact appeared to belong.

The Committee on making and collecting observations of Celestial Phenomena, reported in part, that they had received the following observations of Lunar Occultations of the fixed stars, in mean time of the places of observation.

	1838.				h	m	s			
1.	Nov. 2,	*d*	Pleiadum,	Em.	13	53	11.10	d. l.	Phila. Obs'y,	W. and K.
2.		*n*		Im.	13	18	12.10	b. l.	„	„
3.				Em.	14	34	50.60	d. l.	„	„
4.		*f*		Im.	14	9	53.60	b. l.	„	„
5.				Em.	15	19	25.10	d. l.	„	„
6.		*h*		Em.	15	26	34.40	d. l.	„	„
7.	„ 21,	58	ω Sagittarii,	Im.	6	1	24.30	d. l.	„	„
8.			„	Em.	7	13	20 00	b. l.	„	„
9.			* 8th mag. „	Im.	6	9	12.30	d. l.	„	„
10.		60	α Sagittarii,	Im.	7	43	5.10	d. l.	„	J. and K.
11.	Dec. 27,	*n*	Pleiadum,	Im.	8	0	34.70	d. l.	„	R. and W.
12.				Em.	9	17	33.80	b. l.	„	„

	1838.				h	m	s			
13.	Dec. 27,	*f*		Im.	8	53	56.70	d. l.	Philad. Obs'y.	P. and W.
14.							57.60	d. l.	,,	K. and R.
15.		*h*		Im.	8	54	10.80	d. l.	,,	P. and W.
16.							12.20	d. l.	,,	K. and R.
17.	Nov. 2,	*d*	Pleiadum,	Im.	12	34	26.10	b. l.	Wagner's House,	T. Wagner.
18.				Em.	13	53	28.80	d. l.	,,	,,
19.		*n*		Im.	13	18	48.80	b. l.	,,	,,
20.				Em.	14	34	38.60	d. l.	,,	,,
21.		*f*		Em.	15	19	24.40	d. l.	,,	,,
22.		*h*		Em.	15	26	32.40	d. l.	,,	,,
23.	Dec. 27,	*d*	Pleiadum,	Em.	8	34	35.00	b. l.	,,	,,
24.		*f*		Im.	8	54	0.00	d. l.	,,	,,
25.				Em.	10	1	17.90	b. l.	,,	,,
26.		*h*		Em.	10	11	59.90	b. l.	,,	,,
27.	Nov. 21,	58 ω	Sagittarii,	Im.	6	3	57.35	d. l.	Princeton Coll'e.	Alexander.
28.		60 α	Sagittarii,	Im.	7	44	37.49	d. l.	,,	,,
29.	Dec. 24,	ϵ	Piscium,	Im.	9	35	30.80	d. l.	,,	,,
30.	,, 26,	47	Arietis,	Im.	14	20	54.50	d. l.	,,	,,
31.	,, 27,	*n*	Pleiadum,	Im.	8	4	0.35	d. l.	,,	,,
32.				Em.	9	21	30.40	b. l.	,,	A. and B.
33.		*d*		Im.	7	21	33.50	d. l.	,,	,,
34.				Em.	8	38	38.00	b. l.	,,	,,
35.		*p?*		Im.	7	59	20.10	d. l.	,,	A.
36.		*f*		Im.	8	57	7.85	d. l.	,,	A.
37.				Im.			8.15	d. l.	,,	B.
38.				Em.	10	6	11.30	b. l.	,,	A.
39.		*h*		Im.	8	57	32.76	d. l.	,,	A. and B.
40.				Em.	10	21	31.55	b. l.	,,	A.
41.	Nov. 13,	α	Virginis,	Im.	20	32	38.40	b. l.	Dorchester Obs'y.	Bond.
42.	Dec. 2,	*c*	Aurigæ,	Em.	17	32	19.00	d. l.	Paine's House, Boston.	Paine.
43.	,, 24,	ϵ	Piscium,	Im.	9	53	16.84	d. l.	,,	,,
44.	,, 27,	*f*	Pleiadum,	Im.	9	18	43.28	d. l.	,,	,,
45.	Nov. 21,	58 ω	Sagittarii,	Im.	6	12	33.20	d. l.	Holcomb's Obs'y.	Holcomb.
46.	Dec. 24,	ϵ	Piscium,	Im.	9	44	29.50	d. l.	,,	,,
47.	,, 27,	*n*	Pleiadum,	Im.	8	16	43.10	d. l.	,,	,,

No. 1, at the Philadelphia Observatory of the Central High School. Lat. 39° 57′ 8″; longitude 5*h* 0*m* 42*s* west of Greenwich.

No. 2, good observation. No. 3, doubtful, eye not directed to the exact place of emersion. Nos. 4, 5, 6, 7, 9, 11, 13, 14 and 15, good observations. No. 10, doubtful. No. 12, star reappeared in contact with bright limb.

No. 16, doubtful 1*s*.

No. 17, at T. Wagner's house, 2.16*s* in time, east of the Philadelphia Observatory, with 5 feet equatorial. No. 18, probably too late several seconds.

No. 19, doubtful. No. 20, good observation, preferable to No. 3. Nos. 21, 22 and 24, good observations. Nos. 23, 25 and 26, uncertain, from brightness of moon's limb.

No. 27, at Prof. Stephen Alexander's house, 6″ north, 0.3*s* in time, east of Nassau Hall, Princeton College, New Jersey.

Nos. 27, 28, 29, 30, 31, 32, 33, 36, 37 and 39, satisfactory observations.

Nos. 34, 38 and 40, uncertain from brightness of moon's limb.

No. 35, doubtful 1*s*. Nos. 33 and 36 appeared to be followed by a slight brush of light.

No. 41, at William Cranch Bond's observatory, Dorchester, Mass. Lat. 42° 19′ 15″; longitude 4*h* 44*m* 17.3*s* W. of Greenwich.

No. 42, at R. T. Paine's house, Boston. Lat. 42° 20′ 56″; long. 4*h* 44*m* 16.3*s*. Observation uncertain. Nos. 43 and 44, very good observations.

No. 45, at A. Holcomb's observatory, Southwick, Mass. Lat. 42° 0′ 41″; long. 4*h* 51*m* 15.5*s*.

The initials denote respectively,

W. Sears C. Walker.
K. E. O. Kendall.
J. George M. Justice.
R. William H. C. Riggs.
P. Robert M. Patterson.
A. Stephen Alexander.
B. J. V. Z. Blaney.

b. l. and d. l. denote respectively the bright and dark limbs of the moon.

The following candidates were elected members of the Society:—

James Prinsep, of Calcutta.
John Edwards Holbrook, M. D., of Charleston, S. C.
John C. Cresson, of Philadelphia.
James C. Booth, of Philadelphia.
Edward Coles, of Philadelphia.
J. F. Encke, of Berlin.
A. Quetelet, of Brussels.

Stated Meeting, February 1.

Present, twenty members.

Mr. Du Ponceau, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

L'Art de vérifier les dates, depuis l'année 1770, jusqu'à nos jours. Publié par M. le Marquis de Fortia, membre de l'Institut. Paris, 1837.—*From Mr. D. B. Warden.*

Extrait d'un Mémoire sur la distribution Géographique des Crustacés; par M. Milne-Edwards. 1838.—*From the same.*

Explication de la pierre de Taunton, dans l'Amérique Septentrionale; par Moreau de Dammartin, membre de l'Institut Historique. Paris. —*From the same.*

Notice nécrologique de M. le Professeur Rask, de Copenhague. Paris, 1838.—*From the same.*

The American Journal of Science and Arts. Conducted by Benjamin Silliman, M. D., LL. D., aided by Benjamin Silliman, Jr., A. B. Vol. XXV. No. 2. New Haven.—*From the Conductors.*

Caroli Francisci Joseph Bellingeri è S. Agatha Derthonensi Philosophiæ et Medicinæ Doctoris, amplissimi Medicorum Collegii Candidati, Dissertatio inauguralis. Turin, 1818.—*From the Author.*

Ragionamenti, Sperienze ed Osservazioni Patologiche comprovanti l'Antagonismo Nervoso esposti, e raccolte da Carlo Francesco Bellingeri. Turin, 1833.—*From the same.*

Memorie della Reale Accademia delle Scienze di Torino. Tomo XL. Turin, 1838.—*From the Academy.*

Catalogue and collection of Political Tracts relating to the History of the Colony of Pennsylvania, from 1681 to 1770.—*From Mr. J. Francis Fisher.*

Mr. Vaughan announced the decease, on the 14th of March, 1837, of Count Prospero Balbo, of Turin, a member of the Society.

Dr. Bache announced the decease of Mr. John Wickham, of Richmond, Virginia, also a member of the Society.

Dr. Bache's resignation as Reporter of the proceedings of the Society, was announced by the Secretaries, and the appointment, in his place, of Professor A. D. Bache.

Stated Meeting, February 15.

Present, twenty-three members.

Mr. Du Ponceau, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

The Journal of the Royal Geographical Society of London. Vols. I, II, III, IV, V, VI, VII, & VIII. London.—*From the Society.*

Mémoires couronnés par l'Académie Royale des Sciences et Belles Lettres de Bruxelles. Vol. XIII. Brussels, 1838.—*From the Academy.*

Bulletin de l'Académie Royale des Sciences et Belles Lettres de Bruxelles. Nos. 1 to 8, inclusive. Brussels, 1838.—*From the same.*

Annuaire de l'Académie Royale des Sciences et Belles Lettres de Bruxelles. Quatrième Année. Brussels, 1838.—*From the same.*

De l'Influence des Saisons sur la Mortalité aux différens Ages dans la Belgique, par A. Quetelet. Brussels, 1838.—*From Mr. Quetelet.*

American Quarterly Register. Conducted by B. B. Edwards and W. Cogswell. Vol. XI. No. 3, for February. Boston, 1839.—*From Mr. W. Cogswell.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M. D. No. XLVI, for February. Philadelphia, 1839.—*From the Editor.*

Journal of the Asiatic Society of Bengal. Edited by the Secretary. No. 78, for June. Calcutta, 1838.—*From the Society.*

Journal of the Proceedings of the Bishops, Clergy and Laity of the Protestant Episcopal Church in the United States of America, in a General Convention, held in the City of Philadelphia, A. D. 1838, together with the Constitution and Canons for the government of the Protestant Episcopal Church. New York, 1838.—*From the Rev. Mr. Dorr.*

Sermon preached at the opening of the General Convention of the Protestant Episcopal Church, in Philadelphia, September the 5th, 1838. By the Right Rev. William Meade, D. D. Philadelphia.—*From the same.*

Twenty-seventh Annual Report of the Trustees of the Society of the

Protestant Episcopal Church, for the advancement of Christianity in Pennsylvania. Philadelphia, 1839.—*From the same.*

Proceedings of the Board of Missions of the Protestant Episcopal Church in the United States of America, at their third Annual Meeting, etc. New York, 1838.—*From the same.*

On the courses of Hurricanes; with notices of the Tyfoons of the China sea, and other storms. By W. C. Redfield.—*From the Author.*

A Treatise on Mechanics, by Francis Joseph, Chevalier de Gerstner; edited and considerably augmented by Francis Antony, Chevalier de Gerstner. The commencement of the first chapter. Vienna, 1834.—*From the Editor.*

First Russian Rail Road from St. Petersburg to Zarscoe, Selo and Pawlowsk. By Francis Antony de Gerstner. London.—*From the same.*

An Appeal to the People of Pennsylvania on the subject of an Asylum for the Insane Poor. Philadelphia, 1838.—*From Dr. Dunglison.*

Navigation Made Easy, or Mariner's Complete Guide. By Francis Hoskins. (M. S.) 1803.—*From Mr. W. J. Duane.*

Mémoires de l'Académie Impériale des Sciences de Saint Pétersbourg. VIme. Série. Sciences Mathématiques, Physiques et Naturelles. Vol. III, part fourth, and Vol. IV, part third. St. Petersburg, 1835 & 1836.—*From the Academy.*

Mémoires de l'Académie Impériale des Sciences de Saint Pétersbourg. VIme. Série. Sciences Politiques, Histoire, Philologie. Vol. III, part sixth, and Vol. IV, part second. St. Petersburg, 1836 & 1837.—*From the same.*

Recueil des Actes de la Séance Publique de l'Académie Impériale des Sciences de Saint Pétersbourg, tenue le 30 Decembre, 1836. St. Petersburg, 1837.—*From the same.*

Etwas über die Natur Wunder in Nord America. Zusammen getragen, von Charles Cramer. St. Petersburg, 1837.—*From the Author.*

Narrative of an Expedition to the East Coast of Greenland, sent by order of the King of Denmark, in search of the lost colonies, under the command of Capt. W. A. Graah, of the Danish Royal Navy. Translated for the Royal Geographical Society of London. London, 1837.—*From the Society.*

The Indian Tribes of North America. Nos. 10 & 11. Philadelphia.—*From Mr. F. W. Greenough.*

The officers and council to whom was referred the letter of Doctor Warren, of Boston, inclosing a circular from a meeting of gentlemen at Boston, on the subject of the formation of an American Association for the Promotion of Science, submitted the following resolution, which was adopted by the Society.

Resolved, That the American Philosophical Society, having given the most respectful attention to the letters laid before them by Doctor W. E. Horner, and to the circular letter from the Committee of gentlemen of Boston, by referring the first letter to a Special Committee, and the second, with the circular, to the Board of Officers, are of the opinion, founded on the Reports of the Committee and of the Officers, that it is inexpedient for this Society to undertake the organization of an Association, such as is alluded to in these communications.

Doctor Patterson read an extract from a letter from Mr. T. R. Peale, dated November 13th, 1838.

In this letter Mr. Peale states, that observations had been made on the night of the 12th—13th of November, on board of the exploring vessel, the Peacock, (place not given,) relating to the number of meteors. The greatest number supposed to have been observed in any one hour was seventy-one. Mr. Peale expresses his doubts whether, from the motion of the vessel on the night in question, it was possible to be accurate on this point, and believes the number to have been much overrated.

A display of the Aurora Australis had been witnessed a few weeks before the date of the letter.

Professor A. D. Bache called the attention of the Society to a very convenient method for determining the magnetic dip and intensity, by one instrument, proposed by Professor Lloyd, of Dublin, and used by him, Major Sabine, and Captain James Ross, in the recent magnetic surveys in Great Britain.

The approximate dip is observed without disturbing the magnetism of the needle. The angle with the horizon, when the centre of gravity of the needle is removed from the axis by a small weight, is also observed, the needle being in the plane of the magnetic meridian.

To the first observation, a correction is applied, from observation at a station where the dip is accurately known, to obtain the true dip. The second being repeated at different places, the elements necessary to determine the relative intensities are known; and the approximate formula, connecting these observed elements with the relative intensities of the magnetism of the places where the change of intensity is not great, is very simple.

Prof. Bache showed an instrument, made by Robinson, of London, of the usual construction, for determining the magnetic dip, with needles for the employment of Professor Lloyd's method. He also referred to a method proposed by Professor Christie, of Woolwich, similar in principle, but differing in detail, and showed the needles for applying this method.

Prof. Bache further stated, that he had caused the method of heating these needles to the temperature of boiling water, to bring them to a permanent magnetic condition, as proposed by Prof. Christie, to be tried by Mr. Robinson. It had not proved successful.

Mr. S. C. Walker made a verbal communication on the parallax of the star, 61 Cygni, recently investigated by Mr. Bessel, and described the nature of the researches by which this important point had been established.

Stated Meeting, March 1.

Present, eighteen members.

Mr. Du Ponceau, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

The Life of George Washington. By Jared Sparks. Boston, 1839.—***From Mr. Sparks.***

The Library of American Biography, conducted by Jared Sparks. Vols. VIII, IX, & X. Boston, 1837 & 1838.—***From the same.***

The Transylvania Journal of Medicine. Vol. XI. No. 2. For April, May, and June. Lexington, Kentucky, 1838.—***From the Editors.***

The American Medical Library and Intelligencer. Edited by Robley Dunglison, M. D. Vol. II. No. 22. Philadelphia, 1839.—*From the Editor.*

Annual Report of the Watering Committee, for the year 1836, to the Select and Common Councils of the City of Philadelphia: to which are prefixed the Report for the year 1822, and an extract from the Report for 1823. Philadelphia, 1837.—*From Mr. Frederick Graff.*

Annual Reports of the Watering Committee, for the years 1837 & 1838, to the Select and Common Councils of the City of Philadelphia. Philadelphia, 1838 & 1839.—*From the same.*

Proceedings of the Zoological Society of London. Part V. London, 1837.—*From the Society.*

Transactions of the Zoological Society of London. Vol. II. Parts 2 & 3. London, 1838 & 1839.—*From the same.*

Proceedings of the Conventions of the Province of Maryland, held at the City of Annapolis in 1774, 1775 & 1776. Baltimore, 1836.—*From the State of Maryland.*

The History of Maryland, from its first settlement in 1633, to the restoration in 1660. By John Leeds Bozman. Vols. I. & II. Baltimore, 1837.—*From the same.*

Kongl. Vetenskaps-Academiens Handlingar. For 1835. Stockholm, 1836.—*From the Academy.*

Aorsberättelser om Vetenskapernas Framsteg, afgifne af Kongl. Vetenskaps-Academiens Embetsmän. Stockholm, 1835.—*From the same.*

Second Annual Report of the Board of Education, together with the Second Annual Report of the Secretary of the Board. Boston, 1839.—*From Mr. I. P. Davis.*

Second Annual Report of the Geology of the Public Lands belonging to the States of Maine and Massachusetts. By C. T. Jackson. Boston, 1838.—*From the same.*

Letters on the Internal Improvements and Commerce of the West. By Hon. David Henshaw. Boston, 1839.—*From the same.*

Sixth Annual Report of the Trustees of the State Lunatic Asylum, at Worcester, Massachusetts. Boston, 1838.—*From the same.*

Address of the Duke of Sussex, the President, read at the Anniversary Meeting of the Royal Society, 1838. London.—*From Mr. William Vaughan.*

The Light-Houses of the British Islands. Corrected to July 1836. Hydrographic Office, Admiralty. London, 1836.—*From the same.*

French Light-Houses: translated from the "Description Sommaire des Phares et Fanaux, &c." Corrected to 1836.—*From the same.*

Letters to denote the State of the Weather, and Figures to denote the Force of the Wind. Proposed as a convenient mode of registry in the Log-book of a ship. By F. B. London.—*From the same.*

Draft of a Revised Common School Law, and of a Law relative to the preparation of Common School Teachers; with explanatory remarks, and a set of District Regulations. Prepared by Thomas H. Burrowes, Superintendent. Harrisburgh, 1839.—*From Mr. Frederick Fraley.*

A deposite for the Library was made by Mr. B. F. Mendenhall, being an illuminated manuscript in the Pali language.

Professor H. D. Rogers read a paper entitled "Contributions to the Geology of the Tertiary formation of Virginia. Second Series. By William B. Rogers, Professor of Natural Philosophy in the University of Virginia, and H. D. Rogers, Professor of Geology and Mineralogy in the University of Pennsylvania." Referred to a Committee consisting of Mr. Lea, Dr. Hays, and Dr. Patterson.

On motion of Dr. Patterson, the President of the Society was directed to unite with the Presidents of the City Councils, and with the President of the Board of Controllers of the Public Schools, in an application to the State Legislature to authorize the appointment by the Controllers, in conjunction with the American Philosophical Society, of a Director of the Philadelphia Observatory, at the Central High School.

The purchase of the bust of Doctor Nathaniel Bowditch, executed by Mr. Ball Hughes, was ordered for the Society.

Stated Meeting, March 15.

Present, twenty-five members.

Mr. Du Ponceau, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

The Statutes at Large of South Carolina, edited, under authority of the Legislature, by Thomas Cooper, M.D. LL. D. Vols. III. & IV. Columbia, 1838.—*From Dr. Tidyman.*

Laws of Maryland at large, with proper Indexes. To which is prefixed the Charter, with an English translation. By Thomas Bacon. Annapolis, 1765.—*From Mr. M. Carey.*

Laws of Maryland, made and passed at a Session of Assembly, in the year of our Lord, 1783. Annapolis.—*From the same.*

Congressional Documents for 1826. Two volumes. Washington, 1826.—*From the same.*

Discourse delivered before the Law Academy of Philadelphia, at the opening of the Session, September 5, 1838. By P. M'Call, Esq. Philadelphia, 1838.—*From the Author.*

On the relative strength and other mechanical properties of Cast Iron, obtained by hot and cold blast. By Eaton Hodgkinson, Esq. London, 1838.—*From the Author.*

On the strength and other properties of Cast Iron obtained from the hot and cold blast. By W. Fairbairn, Esq. London, 1838.—*From the Author.*

Address of the General Secretaries at the Eighth Meeting of the British Association for the advancement of Science. 1838.—*From Professor A. D. Bache.*

Catalogue of the Philosophical Instruments, Models of Inventions, Products of National Industry, &c. &c., contained in the first exhibition of the British Association for the Advancement of Science. Newcastle upon Tyne, 1838.—*From the same.*

Catalogue of the Officers and Students of the Medical Institute of the city of Louisville. 1839.—*From Dr. C. W. Short.*

Report of the Legislature of Pennsylvania, containing a description of the Swatara Mining District, illustrated by diagrams. Harrisburg, 1839.—*From Mr. F. Fraley.*

Report of the Superintendent of Common Schools, accompanied with Bills relating to the Common School System. Harrisburg, 1839.—*From Mr. Joseph C. Fisher.*

Reports relative to the Geological Survey of the State of New-York, for 1837. Albany.—*From Mr. Seabury Brewster.*

Transactions of the Maryland Academy of Science and Literature. Vol. I. Part I. Baltimore, 1837.—*From the Academy.*

Anales de Ciencias Naturales. Vols. I, II, III, IV, V, & VI. Madrid, 1799 to 1803.—*From Mr. John Vaughan.*

Descripcion de las Plantas que D. Antonio Josef Cavanilles demostrò en las Lecciones Públicas del Año 1801, precedida de los principios elementales de la Botánica. Madrid, 1802.—*From the same.*

Curso elemental de Botánica, dispuesto para la enseñanza del real Jardin de Madrid, por el Dr. Don Casimiro Gomez de Ortega. Madrid, 1795.—*From the same.*

Voyage de l'Ambassade de la Compagnie des Indes Orientales Hollandaises, vers l'Empereur de la Chine, dans les années 1794 et 1795. Vols. I, & II. Philadelphia, 1798.—*From the same.*

Memoirs comprising the navigation to and from China, by the China Sea and through the various Straits and Channels in the Indian Archipelago; also the navigation of Bombay Harbour. London, 1805.—*From the same.*

A journal of Natural Philosophy, Chemistry, and the Arts. By William Nicholson. Vols I, II, & III. London, 1797 to 1800.—*From the same.*

Calculations relating to the Equipment, Displacement, etc. of Ships and Vessels of War. By John Edye. London, 1832.—*From Mr. William Strickland.*

Professor Henry, of Princeton, made a verbal communication relating to a phenomenon of capillary action which had fallen under his notice.

A lead tube, of about half an inch in diameter, and eight inches long, happened to be left with one end immersed in a cup of mercury; and on inspection a few days afterwards it was observed that the mercury had disappeared from the cup, and was found on the floor at the other end of the tube. Struck with the phenomenon, the cup was again filled with mercury: the next morning the same effect was exhibited. The mercury had again passed over through the

tube, apparently like water through a capillary siphon, and was again found on the floor.

On cutting the tube into pieces, it was evident that the mercury had not passed along the hollow axis, but had, apparently, been transmitted through the pores of the solid metal. To determine this, a lead rod of about seven inches long and a quarter of an inch in diameter, was bent into the form of a siphon. The shorter leg was immersed in a watch-glass filled with mercury, and a similar glass placed under the end of the longer leg, to receive the metal which might pass over. At the end of twenty-four hours, a globule of mercury was perceived at the lower end; and in the course of five or six days, all the mercury passed over, leaving a crop of beautiful arborescent crystals, of an amalgam of lead, in the upper glass.

The mercury did not pass along the surface of the wire, since the lead exhibited, externally, but little change of appearance; although the progress of the penetration could be traced by a slight variation of the colour of the oxide on the surface.

The action is much influenced by the texture of the lead. When a rod of cast lead, of the same size and form, was substituted for the one before described, the globule of mercury did not make its appearance at the lower end until about forty days; and all the mercury of the upper glass had not yet (after three months) entirely disappeared.

The penetration takes place much more readily in the direction of the laminæ of the metal than across them A plate of thick sheet lead was formed into a cup, and mercury poured into this; and it was found that before a drop had passed directly through, the mercury oozed out all around the edge of the plate.

Professor Henry stated that he had in progress a variety of experiments to investigate this action; and if any results of importance were obtained he would communicate them to the Society.

Dr. Hare made a verbal communication to the Society, by which it appears that he has obtained brilliant metallic spangles of calcium.

His processes have been the deflagration of the phosphuret of calcium in an atmosphere of hydrogen; the exposure of the anhydrous iodide of calcium to a current of hydrogen,* or ammonia in an incan-

* By a deflagrator of one hundred pairs of plates, fourteen inches long by eight broad.

descent tube; the ignition of the pure earth or its carbonate or nitrate with sugar; or of the tartrate and acetate per se. Hence resulted carburets, which, after washing with acetic acid and rubbing on a porcelain tile, display the lustre of plumbago, intermingled with metallic spangles, of a brilliancy rivalling that of the perfect metals. The carburets, or the spangles thus obtained, are insoluble in acetic or chlorohydric acid, but yield to aqua regia. The carburets are excellent conductors of the voltaic fluid, as evolved by a series of 100 pairs; and, by deflagration in a receiver filled with hydrogen, yield metallic particles, which, rubbed on a porcelain tile, form spangles of a metallic brilliancy. By igniting antimony with tartrate of lime, Dr. Hare had procured an alloy of that metal with calcium, and expected by analogous means to alloy the metals of the earths with various metals proper. He believed that no effort to obtain calcium prior to his, had been more successful than the abortive experiment of Sir H. Davy, in which the tube broke before the distillation of the mercury was completed, with which the calcium had been amalgamated in the voltaic circuit, agreeably to the process previously employed by Berzelius. Dr. Hare had produced amalgams by exposing the chloride, or sulphide of calcium to the circuit; and, by distillation in an iron alembic, under the protection of a current of desiccated hydrogen, had isolated a portion of calcium, not however endowed with the whiteness or the lustre of that metal, as when otherwise fairly evolved. When distilled in glass tubes or retorts, he had found the amalgam to leave only a film upon the glass, devoid of any metallic attribute; although in one instance, to secure the absence of oxygen, he had mixed an amalgam of ammonium with that of calcium. Hence he inferred, that even though the tube of Davy had remained unbroken, that distinguished chemist would not have found a residue of calcium, uncombined with the elements of the glass. That the spangles obtained by Dr. Hare from lime, were calcium, was ascertained by their solution in aqua regia, and the successive subsequent addition of ammonia and oxalic acid; the resulting precipitate being ignited, then redissolved and again precipitated as at first. No precipitate ensued from the addition of ammonia prior to that of the oxalic acid. Sulphydric acid produced a slight discoloration, but gave no precipitate. That the substances, resulting from the ignition of the carbonate with sugar, and washing with acetic acid, contained calcium in the metallic state, combined with carbon, was evident from their being insoluble in acetic or chlorohydric acid; from the deposi-

tion of carbon, and giving a precipitate of oxalate of lime on being subjected to aqua regia, ammonia, and oxalic acid; from their metallic brilliancy, when burnished, and from their being excellent conductors of the voltaic fluid. By the ignition of the carbonates of baryta and strontia severally with sugar, Dr. Hare had attained analogous results to those abovementioned in the case of the similar ignition of carbonate of lime.

The extreme avidity of calcium for iron was quite striking; since, when a crucible was inclosed in a clean iron case without a cover, the mass, swelling up so as to reach the iron, became slightly imbued with it. By intensely igniting the carburet of calcium, obtained from the carbonate and sugar, with an equal weight of dry tanno-gallate of iron, the whole of the aggregate became so magnetic that every particle was transferred from one vessel to another by means of a magnet. The mass was filled with minute metallic globules, which yielded only partially to chlorohydric acid, and which, when dissolved in aqua regia, gave, after adding ammonia and filtration, a precipitate with oxalic acid.

Dr. Hare was aware that it did not seem consistent that spangles of calcium, burnished upon porcelain, should retain their lustre; as, under other circumstances, and especially when amalgamated, that metal was found to oxidize as soon as exposed to the air. He had, however, through the kindness of Mr. Booth, a pupil of Wöhler, procured a specimen of magnesium evolved by that celebrated chemist. This specimen yielded, under the burnisher, spangles of a lustre as enduring as that observed by Dr. Hare in the case of calcium. It should be recollected that slight causes may affect the oxidability of substances, as has been lately seen in the case of the reaction of iron with nitric acid; and it is well known that silicon, boron, and some other substances have two distinct states, in one of which there is a greater susceptibility of combination with other bodies than in the other.